

WHAT IS CLAIMED IS:

1. A method for transferring articles from a first line to a second line, situated downstream of the first line, the articles being fed along said first line arranged in a row in a forward direction with a spatial arrangement, the method including:

- picking up a leading article of said row by picking up means, fastened to a transferring device;
- removing said leading article from said first line with a first movement having a first trajectory directed downstream with respect to said forward direction, maintaining unchanged said spatial arrangement of said article;
- diverging said article with a second movement following said first movement and having a second trajectory such as to place said article above said second line, maintaining unchanged said spatial arrangement of said article;
- lowering said article with a third movement, following said second movement and having a third straight and vertical trajectory and with a prefixed extension, maintaining unchanged said spatial arrangement of said article;
- placing and releasing said article at a prefixed height level above said second line.

2. A method according to claim 1, wherein said second line is situated at a lower level with respect to said first line and said second movement is obtained by a descending trajectory.

3. A method according to claim 1, wherein said second line is situated at the same or higher level with respect to the first line and said second movement is obtained by an ascending trajectory.
4. A method according to claim 1, wherein said article is placed and released on a transport surface of said second line.
5. A method according to claim 1, wherein said article is placed and released over a pile formed by at least one article, released previously onto said transport surface of said second line.
6. A method according to claim 1, wherein said first trajectory of said first movement is ascending.
7. A method according to claim 1, wherein said first trajectory of said first movement is descending.
8. A method according to claim 1, wherein said first trajectory of said first movement is straight.
9. A method, according to claim 1, wherein said first trajectory of said first movement is horizontal.
10. A method according to claim 1, wherein said second trajectory of the second movement is defined by a combination of subsequent straight and/or curved sections.

11. A method according to claim1, wherein said articles are transferred to a to a picking up pad, situated at the end of said first line before being picked up.

12. A transferring device for transferring articles from a first line to a second line situated at a lower height level and downstream with respect to the first line, said transferring device including:

a first bar, articulated to a pivot and swinging in a vertical plane between two extreme positions, a high position and a low position, angularly distanced by a selected angle, said first bar being operated by a motor;

a second bar, hinged to a free end of said first bar, at an hinge joint, with said second bar swinging in a vertical plane and arranged at an angle with respect to said first bar;

a first four-bar linkage with a longer side defined by said first bar, and with a shorter side kept stationary and defined between said pivot of said first bar and a relative hinge joint;

a second four-bar linkage with a longer side defined by said second bar, with said second four-bar linkage being pivoted to the first four-bar linkage at said hinge joint and interconnected to said first four-bar linkage by a plate for stabilizing mutual position of two shorter sides pivoted at said hinge joint and belonging respectively to said first and second four-bar linkages;

a support for supporting picking up means for picking up said articles, with said support being fastened to a shorter side of said second four-bar linkage, which is pivoted to a free end of said second bar;

guiding means, connected to said support for defining a movement trajectory for the support during said rotation of

the first bar in combination with the shape assumed by said four-bar linkages, said movement trajectory being such that, when said first bar is in said high position, said support and the connected picking up means are moved to pick up a leading article from a row of articles fed along said first line, said support and picking up means and leading article being then guided with constant arrangement to perform a first movement, having a first trajectory almost horizontal and straight in the same direction as the first line forward movement direction, a second movement, following the first movement, having curved descending second trajectory and a third movement, following the second movement, having vertical, straight and descending third trajectory, up to a selected height level, above said second line and corresponding to said low position of said first bar, with said article being placed and released at said selected level.

13. A transferring device according to claim 12, wherein said guiding means include a roller rotatably fastened to said support, in a coaxial position with an hinge joint of said second four-bar linkage, situated at a free end of said second bar, with said roller being engaged within a track extending between said first and second lines and shaped in such a way, as to define a path corresponding to said first, second and third trajectories of said first, second and third movements.

14. A transferring device according to claim 12, wherein said picking up means, connected to said support, include a horizontal arm with a plurality of suction cups extending downwards and set in a vacuum by suction means, to pick up and hold the upper surface of said article.

15. A transferring device according to claim 12, in which said articles feature a horizontal edge along their perimeter, wherein said picking up means include a group, having moving catchers operated horizontally to engage, from bottom, with said edge (50) to pick up and support said article.

16. A transferring device according to claim 12, further including management and control means for acting on said motor to determine said low position of the first bar, and consequently, to define a selected height level at which said article is to be placed and released onto said second line.

17. A transferring device according to claims 12, further including a picking up pad situated at the end of said first line, the articles being transferred to said picking up pad before being picked up by said picking up means.